



BRIEF COMMUNICATION

Effectiveness of exodontia with acupuncture analgesia

Efectividad de la exodoncia con analgesia quirúrgica acupuntural

Maura Alicia Varona-Lazo ¹✉ , **Laura Manresa-Malpica** ² , **Odalys Martín-Reyes** ³ ,
Soledad Yanedy García-Peláez ³ 

¹University of Medical Sciences of Camagüey. Nuevitas Medical Sciences Branch. Nuevitas, Camagüey, Cuba.

²University of Medical Sciences of Camagüey. Nuevitas Medical Sciences Branch. Stomatological Clinic "Reinaldo Aday López". Nuevitas, Camagüey, Cuba.

³University of Medical Sciences of Camagüey. Faculty of Stomatology. Camagüey, Cuba.

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ABSTRACT

Introduction: exodontia is that part of oral surgery that deals with the extraction of a tooth or portion of it, by means of techniques and appropriate instruments from the bone bed that houses it. The application of acupuncture surgical analgesia is an effective option for stomatologists to perform this treatment due to the advantages it offers.

Objective: to determine the effectiveness of exodontia performed with acupuncture surgical analgesia.

Method: a quasi-experimental study was carried out at the Francisco Peña University Polyclinic of the Nuevitas municipality between January 2019 and January 2020. The universe was constituted by 73 patients who needed an exodontia as stomatological treatment and a sample of 46 patients was selected by the simple random method. Theoretical, empirical and statistical-mathematical methods were used.

Results: female sex predominated and the most frequent age group was 46 to 55 years old. Transoperative pain intensity in both jaws ranged from absent to mild, with only one case of moderate pain. The optimal time for acupuncture analgesia was shorter in the maxilla than in the mandible. No adverse reactions were reported in the patients treated.

Conclusions: surgical acupuncture analgesia is a procedure with scientific basis in continuous development. Its indication for exodontia in stomatology is an, economical effective, safe and innocuous method.

Keywords: Acupuncture Analgesia; Surgery, Oral; Anesthesia.

RESUMEN

Introducción: la exodoncia es aquella parte de la cirugía oral que se ocupa de practicar la extracción de un diente o porción del mismo, mediante técnicas e instrumental adecuado del lecho óseo que lo alberga. La aplicación de la analgesia quirúrgica acupuntural es una opción efectiva que tienen los estomatólogos para realizar este tratamiento por las ventajas que ofrece.

Objetivo: determinar la efectividad de las exodoncias realizadas con analgesia quirúrgica acupuntural.

Métodos: se realizó un estudio cuasiexperimental en el Policlínico Universitario Francisco Peña del municipio Nuevitas en el período comprendido entre enero de 2019 y enero de 2020. El universo estuvo constituido por 73 pacientes que necesitaron como tratamiento estomatológico una exodoncia y se seleccionó una muestra por el método aleatorio simple de 46 pacientes. Fueron empleados métodos teóricos, empíricos y estadístico-matemático.

Resultados: predominó el sexo femenino y el grupo etario más frecuente fue de 46 a 55 años. La intensidad del dolor transoperatorio transcurrió en ambos maxilares entre ausente y ligero para un solo caso de dolor moderado. El tiempo óptimo para la analgesia acupuntural fue menor en el maxilar que en la mandíbula. No se reportaron reacciones adversas en los pacientes atendidos.

Conclusiones: la analgesia quirúrgica acupuntural es un procedimiento con bases científicas en continuo desarrollo. Su indicación para exodoncias en estomatología es un método eficaz, seguro, económico e inocuo.

Palabras claves: Analgesia Acupuntural; Exodoncia; Anestesia.

INTRODUCTION

Exodontia is that part of oral surgery that deals with the avulsion or extraction of a tooth or portion of a tooth, by means of techniques and instruments appropriate to the bone bed that houses it. The ideal dental extraction is the total extirpation of the tooth or dental root without pain, with the minimum damage to the surrounding tissues, so that the wound heals without complications.⁽¹⁾

Tooth extractions were one of the first surgical procedures in European medicine. The first knowledge in this regard dates back to the teachings of Hippocrates (460-377 B.C.E.) among the Greeks, then different instruments were designed, but it was not until the middle of the 18th century that studies were initiated, represented by nitrous oxide. Subsequently, the anesthetic properties of propoxide, ether, chloroform, among others, were studied and popularized. In 1884 Koller began the application of local anesthetics based on cocaine solutions until reaching the current substances, among them: procaine, lidocaine, bupivacaine and tetracaine.⁽²⁾

Oriental medicine was no exception in the search for analgesic and therapeutic alternatives for pain relief. To this end, Natural and Traditional Medicine (NTM) was used, which constitutes a set of techniques whose purpose is to restore the endogenous and exogenous bioenergetic balance, this imbalance (disease) can be deficit or excess of energy.⁽³⁾

Acupuncture therapy restores the body's energetic balance and thus health. Emerging about 5000 years ago in China, acupuncture was first mentioned by Jesuit missionaries and other travelers in the seventeenth and eighteenth century and began to spread very slowly from 1930 in the Western Hemisphere.⁽⁴⁾

Acupuncture is recognized for its effects: analgesic, regulatory, sedative, immunological among others, has advantages over anesthesia by the absence of allergic and systemic reactions, better postoperative and no toxic reactions and also has anti-inflammatory effects. Numerous terms and theories support the effects of acupuncture, among them we can mention the western theories, reflexotherapy and nociception.⁽⁵⁾

At present, MNT is one of the disciplines of greatest interest in many regions of the world. It was introduced in Latin America in 1948 and in Cuba between 1960-1962 and started as a line of research by the World Health Organization (WHO) in 1974.⁽⁶⁾

In Cuba, the Ministry of Public Health (MINSAP) includes annually the topic of NTM in its prioritized work objectives with the purpose of contributing to improve the health status of the population, which was embodied in the National Program for the Development and Generalization of Natural and Traditional Medicine. The objective of this program is to provide the technical bases for the development of NTM throughout the country as an element that contributes to increase the offer of therapeutic modalities and the quality of medical care in terms of the population's satisfaction with the health services it receives. Specifically, the program of dental extractions with acupuncture surgical analgesia (AQA) is part of the modalities defined in this program.^(7,8)

It is important for stomatologists to appropriate the knowledge about MNT, so that their practice is enriched with integral therapeutic behaviors, favoring the best quality of life in patients. Therefore, the objective of the research is to determine the effectiveness of exodontia performed with acupuncture surgical analgesia at the Francisco Peña Peña University Polyclinic in the municipality of Nuevitas.

METHODS

A quasi-experimental study was conducted at the Policlínico Universitario Francisco Peña of the Nuevitas municipality in the period from January 2018 to January 2019. The universe was constituted by 73 patients who needed as stomatological treatment an exodontia, for the selection of the sample a non-probabilistic intentional sampling was used, it was constituted by 46 patients who adjusted to the selection criteria.

Inclusion criteria: patients older or equal to 18 years of age of both sexes who needed exodontia as treatment in the stomatological consultation, residents in the municipality of Nuevitas and agreed to participate in the research.

Exclusion criteria: presence of diseases that due to their severity or tendency to complications constituted contraindications for normal exodontia, pregnancy or any other event that contraindicated acupuncture treatment.

Exit criteria: any of the events evaluated were considered as exclusion criteria that could have arisen in the patient once incorporated into the study. All patients were evaluated from inclusion in the study until it ended.

Techniques and procedures:

After signing the informed consent, the cases were received, a clinical history was taken, diagnosis was made and all the elements concerning the investigation were recorded in a guide made for this purpose.

The exodontia treatment was performed by means of acupuncture analgesia with dispersion technique twenty to thirty minutes before the beginning of the surgical maneuver. The needle was introduced when breathing in and withdrawn when breathing out. The needles were placed in the acupuncture points according to the anatomical region of the tooth to be extracted. Subsequently, the handle was torn upwards to extract the energy. An approximate time of 20 to 30 minutes was waited for the induction of analgesia.

After the antisepsis of the intrabuccal area to be intervened, the exodontic maneuvers were performed. In case of moderate pain, the time was prolonged a few minutes more. The occurrence or not of complications was observed during the surgical act and after the first 72 hours, in periods of 24, 48 and 72 hours, to verify the presence or not of postoperative pain and the occurrence of adverse reactions.

Treatment schedules according to the location of the tooth to be extracted:

Maxillary incisors and canines: Ig 20, Vg 26.

Maxillary bicuspid: E 3; Id 18; Vg 26.

Maxillary molars: E 7, Id 18, Vg 26.

Mandibular incisors and canines: Vc 24, Ex Jiachengjiang, ASHI in canine.

Mandibular bicuspid: E5, Vc 24, Ex Jiachengjiang.

Mandibular molars: E 5, E 6, Vc 24.

Points used in all cases:

Distal point: Ig 4 (Hegu).

Points of the ear microsystem.

The variables selected were:

- Sex: according to biological sex: male, female.
- Age: according to age group at the time of the study: 18 to 25, 26 to 35, 36 to 45, 46 to 55, 56 to 65, 66 to 75, 76 or more years.
- Intensity of transoperative pain with acupuncture analgesia according to location of the tooth: absent, slight or moderate.
- Optimal time for induction of acupuncture analgesia to allow exodontia to be performed.
- Postoperative analgesia time in the evolution consultations (24, 48 and 72 hours) according to tooth groups in the maxilla.
- Postoperative analgesia time in the evolution consultations (24, 48 and 72 hours) according to tooth groups in the mandible.
- Occurrence of adverse reactions: yes or no.

A scale was elaborated to evaluate the behavior of the transoperative pain threshold:

- Absence of pain: the patient does not show or refer any discomfort during the exodontia.
- Slight pain: the patient reports some type of barely imperceptible discomfort during the extraction, and it is not necessary to stop the surgical maneuver.
- Moderate pain: the patient shows and reports moderate pain, it is necessary to stop the surgical maneuver up to two times, and the extraction can be performed.
- Severe pain: the patient shows and refers pain, it is necessary to stop the surgical maneuver more than twice, and exodontia cannot be performed with pure AQA.

An evaluative scale was elaborated on the behavior of postoperative pain in the first three days (24, 48 and 72 hours) and observation, physical examination of the patient and reference to pain as the main symptom were used as instruments:

- Absence of pain: no reddening or indurations at the level of the dental alveolus were observed. No functional impotence of opening and closing of the mouth, or of the orbicularis or labia, or of any other structure near or far from the extraction site. Absolute absence of pain.
- Slight pain: painful discomfort that does not generate functional impotence. Discrete redness at the level of the dental alveolus.
- Moderate pain: painful discomfort that limits the function of the muscle groups for opening, closing and chewing. Redness may be observed in the area of tooth extraction and induration at the bottom of the vestibular sulcus.
- Severe pain: severe pain, functional impotence, inflammation and redness in the area of the extraction with ostensible induration of the surrounding areas.

During the development of the research, theoretical methods were used: historical-logical, inductive-deductive and analysis-synthesis; empirical: the survey and the statistical-mathematical method that allows the analysis of the results by means of tables and percentage calculation.

For statistical processing, a database was created using Microsoft Excel. This information was processed with the SPSS package version 21.0 for Windows. Descriptive measures such as absolute frequencies and percentages were calculated.

The research was analyzed and approved by the scientific committee of the institution. Compliance with ethical principles was taken into account, and informed consent was requested from the patients after explaining the particularities of the research. The data obtained were only used for exclusively scientific purposes and the confidentiality of the information was assured.

RESULTS

The sample consisted of a total of 46 patients, of whom 29 were female and 17 male. There was a predominance of the 46 to 55 years age group, represented by 14 patients (Table 1).

Table 1. Distribution of patients according to age and sex. Policlínico Universitario Francisco Peña of the Nuevas municipality. January 2018 to January 2019.

Age group	Sex				Total	
	Female		Male		Nº	%
	Nº	%	Nº	%		
From 18 to 25	0	0	1	5,9	1	2,2
From 26 to 35	3	10,3	0	0	3	6,5
From 36 to a 45	5	17,2	3	17,6	8	17,4
From 46 to 55	8	27,6	6	35,3	14	30,4
From 56 to 65	7	24,1	2	11,8	9	19,6
From 66 to 75	4	13,8	4	23,5	8	17,4
From 76 or more	2	6,9	1	5,9	3	6,5
Total	29	100	17	100	46	100

The intensity of transoperative pain with acupuncture analgesia is presented according to the location of the tooth. In the maxillary anterior sector analgesia (absence of pain) was obtained in all cases and in the mandibular anterior sector only one case of slight pain was obtained. The maxillary and mandibular posterior sectors showed respectively four cases with slight pain and one case with moderate pain in the mandible. There was no severe pain in any of the maxillae (Table 2).

Table 2. Intensity of transoperative pain with acupuncture analgesia according to tooth location.

Tooth location	Intensity of trans-operative pain						Total	
	Absent		Slight		Moderate		Nº	%
	Nº	%	Nº	%	Nº	%		
Maxillary anterior sector	3	3,6	0	0	0	0	3	3,6
Maxillary posterior sector	16	19,5	4	4,8	0	0	20	24,4
Maxillary subtotal	19	23,1	4	4,8	0	0	23	28,1
Mandible anterior sector	15	18,3	1	1,2	0	0	16	19,5
Posterior sector mandible	38	46,3	4	4,8	1	1,2	43	52,4
Mandibular subtotal	53	64,6	5	6,1	1	1,2	59	71,9
Total	72	87,8	9	10,9	1	1,2	82	100

It is shown that the average time for induction of acupuncture analgesia in the mandible exceeded the average time in the maxilla by 8,25 minutes (Table 3).

Table 3. Optimal time for induction of acupuncture analgesia according to groups and dental arches.

Arcadas dentarias	Dentary arches Optimum time per dental group (in minutes)				
	Incisor	Canine	Premolar	Molar	Average
Maxilla	15	20	20	22	19,25
Mandible	20	30	30	30	27,5
Total	35	50	50	52	46,75

The postoperative analgesia time was analyzed in the evolution consultations (24, 48 and 72 hours) according to tooth groups in the maxilla and mandible. The benefits of acupuncture in the postoperative period were proven, since in the first 48 hours 100 % of the exodontia performed in the maxilla passed in analgesia, while 99,1 % of the exodontia performed in the mandible did not report pain after the first 48 hours. Only one case of slight pain was observed which corresponded to the mandibular molar of the complication for 0,9 % of the total, after 72 hours the painful discomfort subsided in its totality.

In this investigation no adverse reactions were reported in any of the treated patients.

DISCUSSION

AQA is an analgesic method based on the elevation of the pain threshold by means of acupuncture stimulus, that is to say, the blockage of the painful signal to be originated during the surgical act and not allowing its passage to the superior nervous centers, where it would be interpreted as pain.⁽⁹⁾ Unlike local anesthesia that can cause systemic toxicity depending on the patient's comorbidity, AQA does not induce negative collateral effects in the organic functions and when used correctly does not cause accidents.^(10,11)

Regarding dental extractions, the most commonly used technique is the conventional method with local anesthetics; however, acupuncture is a therapeutic alternative for extractions and other dental practices, since it relieves pain. Acupuncture is generally used in patients with allergies or who have had unpleasant experiences. With acupuncture, it has been shown that the pain is less intense during an extraction.⁽¹²⁾

In the study carried out, the behavior of transoperative pain with acupuncture analgesia behaved similarly to the research carried out by Abreu Correa JM and Mateo JE,⁽¹³⁾ which shows that acupuncture analgesia allows complicated extractions to be performed.

They obtained an optimal time of five minutes less for the induction of acupuncture analgesia in the maxilla in relation to another report,⁽¹³⁾ and in the mandible the results coincided. Similarly, they state that the optimal time to achieve anesthesia with 2 % lidocaine was longer in the mandible. Therefore, it is demonstrated that the mandible requires longer analgesic induction time than the maxilla.

The postoperative analgesia time in the evolution consultations in the maxilla and mandible coincides with the previously mentioned article,⁽¹³⁾ which demonstrates the effectiveness of acupuncture to perform exodontia.

Vistel Montoya et al.,⁽¹⁴⁾ performed a therapeutic intervention in 136 patients diagnosed with cataract, operated with AQA, and states that it was more effective than anesthesia, since greater sedation was achieved in almost all patients during the operation, with fewer cases of edema and hemorrhage, as well as greater permanence of its effect during the postoperative period in relation to conventional anesthesia.

Capote Hernández et al.⁽¹⁵⁾ state that AQA is an effective option in operations for inguinal hernia types I and II, with an excellent and good clinical evaluation in the transoperative period, as well as a very satisfactory response in the postoperative period.

The authors consider that AQA is not intended nor can it absolutely replace conventional anesthesia; it constitutes one more option, an alternative to be used at certain times and in selected cases, alone or as an adjuvant to different anesthetic techniques. The beneficial effects of AQA are undeniable due to its analgesic, anti-inflammatory, homeostatic and immunological properties. The postoperative period passes comfortably, minimizes the operative cost and saves resources.

CONCLUSIONS

AQA is a procedure with a scientific basis in continuous development. Its indication for exodontia in stomatology is an effective, safe, economical and innocuous method. In the research carried out, the predominant sex was female and the most frequent age group was 46 to 55 years old. The intensity of the transoperative pain in both jaws ranged from absent to mild, with only one case of moderate pain. The optimal time for acupuncture analgesia was shorter in the maxilla than in the mandible. No adverse reactions were reported in the patients attended.

Conflict of interest

The authors declare that there are no conflicts of interest in this research.

Authorship Contribution

MAVL: conceptualization, data curation, formal analysis, research, methodology, supervision, validation, writing (review and editing), approval of final version.

LMM: conceptualization, data curation, formal analysis, research, methodology, original draft-writing, writing (review and editing), final version approval.

OMR: methodology, formal analysis, supervision, validation, drafting (review and editing), final version approval.

SYGP: research, methodology, data curation, formal analysis, drafting (review and editing), final version approval.

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Additional material

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